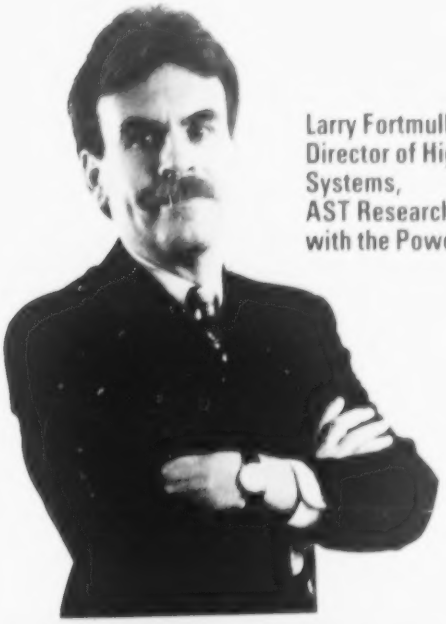
SPECIAL SURVEY: IS Purchasing Building Steam For '93 *page 38*

A CAHNERS PUBLICATION

DATAMATION

FOR CORPORATE COMPUTING PROFESSIONALS WORLDWIDE

JUNE 1, 1992



Larry Fortmuller, Director of High Performance Systems, AST Research Inc., with the Power Premium

AST Fields A Windows Machine

page 22

New Video Boards Make Windows Fly *page 31*

Operating Systems Take Pen In Hand *page 57*

Digital's New Path For Pathworks *page 73*

Top Accountants Rate Accounting Software *page 80*

Levi Strauss's CIO On: The Technology Of Empowerment *page 120*

BUYER'S GUIDE NETWORK SECURITY TOOLS

page 104

June 1, 1992 CONTENTS Vol. 38, No. 12

DATAMATION

FOR CORPORATE COMPUTING PROFESSIONALS WORLDWIDE

FEATURES

COVER STORY

22 AST Fields A Windows Machine

These thoroughbreds from AST were born to run Windows at breakneck speeds.

ACCELERATING WINDOWS

31 New Video Boards Make Windows Fly

Windows's success is giving rise to a variety of products for improving its performance on 286, 386 and even 486 PCs.

SPECIAL REPORT

38 Building Up Steam For '93

Stoke the fires, full speed ahead for the 15th annual DATAMATION/ Cowen & Co. survey of mainframe and midrange purchasers' buying intentions—broken down in abundant, useful detail.

PRODUCT GUIDE

99 Building Workflow Bridges

NCR has added a tool to its Cooperation client/server-based system that lets traffic flow smoothly—workflow automation software.

100 Movie-Time Training

Lotus Development Corp. has introduced a training product that may make learning 1-2-3 For Windows as fun as going to the movies.

BUYER'S GUIDE

104 Who's Using Your LAN?

Access control is the first line of defense in securing a local area network, but there's more than one way to control who sees what.

PCs & WORKSTATIONS

57 Operating Systems Take Pen In Hand

Applications, that's the point of pen-based computing. But choosing an operating system comes first.

ON THE COVER: AST's Fortmuller stands behind the Power Premium, page 22.

SPECIAL REPORT: Pent-up demand could lead to significant IS spending in 1993, page 38.

PRODUCT GUIDE: NCR's Gray offers Cooperation, page 99.

Continued on page 5

CONTENTS

FEATURES

PCs & WORKSTATIONS

65 Making The Remote LAN Connection

Remote LAN access is growing in popularity, but the methods to achieve it vary widely in features and performance.

NETWORKS

73 Digital's New Path For Pathworks

No longer trying to compete head-on with the leading LANs, today's Pathworks aims to have something for everyone.

SOFTWARE

80 Top Accountants Rate Accounting Software

If the leading micro- and LAN-based accounting packages all look the same to you, look closer—their differences are small but important.

87 Running The Distributed OLTP Maze

When—and how—should you distribute mission-critical transactions across your organization? We provide this problem-solving guide.

MIDRANGE/MAINFRAME

95 HP's Emerald Could Save You Greenbacks

With new mainframe-class PA-RISC machines, HP is making a play for customers with mainframe needs—and midrange wallets.

MANAGEMENT

120 Levi Strauss's CIO On: The Technology Of Empowerment

Levi Strauss & Co. is among the best at delegating authority and responsibility through IS systems. CIO Bill Eaton makes it happen.

INTERNATIONAL: Special supplement, not included in all issues, page 96-3.

DEPARTMENTS

Inside 9
Look Ahead 11
Media Report 17
New Products 109
Career Opportunities . . 116
Ad Index 127
Economic Trends 128

Company Index

This index lists vendors, user groups and industry associations mentioned in this issue of DATAMATION, excluding those mentioned only in passing. Page numbers refer to the first page of articles.

Aberdeen Group 73
Advanced Business Microsystems 80
Advanced Logic 31
Altec 31
Amdahl 38
American Express 38
Andersen Consulting 116
Apple 109
AST Research 22
Asymetrix 109
ATI 31
AT&T 89, 99
Bachman 38, 116
Banyan 73, 109
BMW 65
Borland 109
BOS 109
Boulay, Heutmaker 80
BRG 73
Bull HN 89
Canadian Imperial Bank 31
Cascade Steel 73
Caseworks 116
Centel 103
Central Point 65
Cimi 73
Citibank 89
Communication Intelligence 57
Communications Network Architects 73
Compaq 22, 31
Computer Associates 80
Computer Training 80
Comtrade 31
Continental Bank 57
Coopers & Lybrand 80
Cowen & Co 38
Cray Research 38
CSS 22, 31
Cyma 80
D&B Software 109
DCA 65
Dell 22
Diamond Computer 31
Digital 38, 73, 80, 89
Digitalk 109
Dream It 57
Emerson & Stern 109
EPS 22
Epson 22
Everex 22
Extended Systems 109
FMC 95
Focus 31
Ford 89
Fujitsu America 109
Gartner Group 89
Gateway 2000 22, 31
Genoa Systems 31
GeoWorks 38
Go Corp 38, 57
Great Plains Software 80
Grid 57
Hauppauge Computer Works 31
Hercules Computer 31
Hitachi Data Systems 38
Hornet Technology 31
HP 22, 38, 89, 95
Hurwitz Consulting 57
IBM 38, 89, 95
ICL 89
Independence Technologies 89
Independent Monitoring 103
Informix 89
Ingres 89
Integrated Systems 116
Intel 38
Intercomputer Communications 109
Intersolv 38
J&L 65
Keydata 109
KnowledgeWare 38, 116
Levi Strauss 120
Lexmark 109
Libra 80
Lotus 99
Macola 80
Manzanita 80
Marriott 57
MásPar 38
McDonald's 65
Michael Stein 103
Microcom 65
Microsoft 22, 31, 38, 57
MicroStrategy 109
Mobius 109
Modern Technologies 31
Momenta 57
Nanao USA 31
National Semiconductor 22
NCR 57, 89, 99, 109
NEC 89
NEC Technologies 22, 31
Network General 38
Norton-Lambert 65
Novell 38, 65, 72, 103
Ontos 109
Open Systems 80
Oracle 38, 89
Orchid 31
Pacific Gas & Electric 22
Panacea 31
PC Guardian 103
Pensoft 38
Pinnacle Publishing 109
PortaCom 31
Pyramid Development 103
Ray Dream 109
RealWorld 80
Recognition Equipment 99
SBT 80
Sequent 38
Shiva 65
Simpact 109
Slate 38, 57
SoftLogic 109
Solomon Software 80
Sony 38
SourceMate 80
Standard Computer 22, 31
State Of The Art 80
Stratus 38, 89
Sun 38, 89
Sybase 38, 89
Symantec 65
SynOptics 38
Texas Special Olympics 73
Thinking Machines 38
3Com 38, 73
TI 116
Toshiba America 109
Transarc 89
Travis, Wolff 80
Trusted Information Systems 103
Unisys 89, 109
USL 89
VCOM 22, 31
Visible Systems 109
Vitalink 38
Walker, Richer & Quinn 73
Wertek 31
Western Digital 22
X/Open 89
Zenith Electronics 22

SPECIAL REPORT
INDUSTRY FORECAST

Building Up Steam For '93

What happens when you merge one of the country's foremost technology investment brokerage houses, a hotel full of institutional investors, a multitude of high-tech execs and more than 2,000 DATAMATION readers? You get the 15th annual DATAMATION/Cowen & Co. survey of mainframe and midrange purchasers' buying intentions—broken down in abundant, useful detail.

For three days this spring, DATAMATION and Cowen & Co. took over San Francisco's Ritz Carlton to unveil to institutional investors and dozens of supplier company representatives the state of the computing industry today—and the promise of emerging technologies tomorrow.

On the following pages, we reveal the state of your IS compatriots' wallets. We uncover how they're spending this year's more frugal budgets and where they're saving. We uncloak the promises that are fizzling and those still gaining strength. And, in related articles, we examine four emerging technologies—massively parallel processors, pen-based computers, object-oriented programming and smart network hubs—that excited a lot of interest among both Cowen's eager investment audience and DATAMATION's IS readers.

BY DWIGHT B. DAVIS

One year ago, corporate information systems skippers anticipated a rising economic sea that would lift their budgetary vessels out of a recessionary trough. Instead, the ebb tide persisted, causing already-depressed spending growth rates to sink even further. Still, various computing sectors and companies have managed to swim against the tide, and many industry participants see a broad-based flood of IS purchases building on the horizon.

So says the 15th annual DATAMATION/Cowen & Co. survey of mainframe and midrange computer users. In aggregate, the 2,321 survey respondents indicate that, because of spending restraints, their computer operations are not keeping up with their users' needs. Once money begins to flow more freely, this pent-up demand could cause a strong resurgence of hardware and software spending, speculates Steve Weber, managing director of Cowen & Co. in Boston. "Budgets look like they could take off in 1993," he says, while cautioning that many users remain pessimistic.

In fact, because of the recession, more than one-fourth of the survey respondents have deferred or canceled major planned hardware procurements. And total IS budgets are projected to grow only 6% annually over the next three to five years. While that may sound high compared with other corporate budgets, it's down significantly from previous years. Even in last year's uncertain economic climate, Cowen survey respondents expected their IS budgets to grow 7.5%.

Meanwhile, everyone's processing and storage capacity needs continue to grow relatively unchecked. On average, these capacity demands are doubling about every 3.5 years, the source of the pent-up demand. Of those who put off major hardware purchases, more than one-third expect to reinstate procurements in 1993 or later, and a quarter expect to reinstate them as soon as this year. Overall, 41% expect to spend somewhat or considerably more on hardware in 1993 than they will this year.

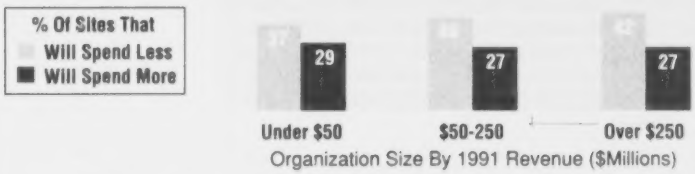
Given these dynamics, financially strapped IS executives find themselves wrestling with two fundamental options. On the one hand, they can embrace new technologies and computing architectures that promise better price/performance than their traditional mainframe host computers. Users can shift mainframe applications to midrange departmental systems or to desktop PCs and workstations, for instance. Additionally, in something of a compromise approach, IS chiefs can implement network-based client/server computing, in which data and applications that once resided solely on the mainframe are partly distributed to departmental and desktop computers.

On the other hand, IS chiefs can stick

Budgets Soft, But Demand Grows For 1993

RESPONDENTS WERE PESSIMISTIC ABOUT 1992 HARDWARE SPENDING.

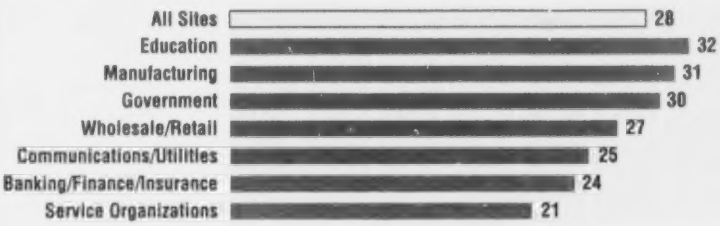
How will the dollar value of hardware (CPUs, peripherals and PCs) to be acquired by your organization in 1992 compare with that of 1991?



Organization Size By 1991 Revenue ($Millions)

MORE THAN ONE-FOURTH OF REPONDENTS DEFERRED OR CANCELED MAJOR HARDWARE ACQUISITIONS IN 1992...

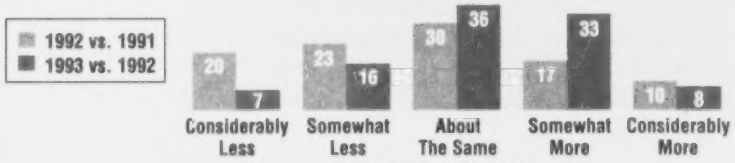
Has your organization deferred or canceled any major planned hardware procurement(s) because of the recession?



% Of Sites Answering "Yes"

BUT RESPONDENTS ARE CONSIDERABLY MORE OPTIMISTIC ABOUT 1993 BUDGETS.

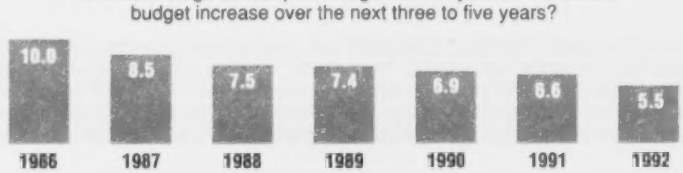
How do you expect your 1993 hardware-spending budget to compare with 1992's?



% Of 3090-Class Sites

OVER THE LONG TERM, HOWEVER, RESPONDENTS INDICATED HARDWARE BUDGETS WILL CONTINUE THEIR DECLINE, OSTENSIBLY DUE TO ECONOMIC UNCERTAINTY.

At what average annual percentage rate will your DP hardware budget increase over the next three to five years?



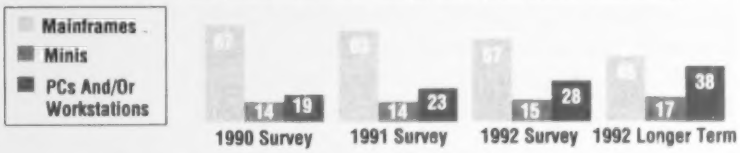
3090-Class Sites Only

Source: DATAMATION, Cowen & Co.

Where Applications Are Going

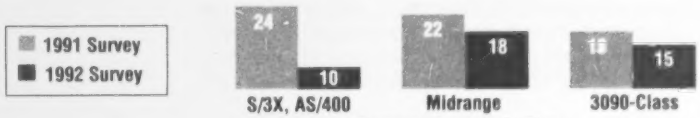
NEW APPLICATIONS ARE RAPIDLY MOVING AWAY FROM BIG IRON.

Percentage of new applications to be implemented on various types of computers over the next one to two years, and in the longer term (308X/3090-class sites)



HOWEVER, RESPONDENTS ARE NOW LESS INCLINED TO MOVE EXISTING APPLICATIONS OFF THE MAINFRAME.

What percentage of your current applications will move to PCs and LANs in 1 to 2 years?



Largest System At Site

Source: DATAMATION, Cowen & Co.

with what they know best: maintaining a focus on mainframe-oriented facilities. Bearing these dilemmas in mind, IBM and other mainframe vendors are struggling to maintain their bases of existing users by offering new generations of large processors and improved data storage subsystems, all featuring better price/performance, increased data capacity and greater functionality.

On balance, the limited IS funds currently available help prolong the status quo, at least in the short term. Major computing overhauls require major investments; even though smaller machines and networks promise cost savings over time, it's tough for managers to spend large sums today against future, theoretical paybacks.

In fact, users of large, IBM 3090-class mainframes estimate that they will move only 15% of their current mainframe applications to networks or personal computers during the next two years. Last year, with greater budget growth anticipated, 18% of these respondents expected such an application migration.

But in the long term, despite the slowdown in off-loading mainframe applications, the survey data indicate that the mainframe's importance will continue to erode gradually. For the first time in the survey's history, respondents predict that they will implement less than half of their new applications on mainframes over the long haul.

Over the next two years, respondents project 57% of new applications will be implemented on mainframe computers. That's down from 63% a year ago. And when asked about the long term, that number drops to 45%. At the same time, respondents anticipate putting more and more applications on PCs and workstations, and, to a lesser extent, on minicomputers. "While the data indicate a long-term trend away from mainframes, they are not by any means being swept away rapidly," concludes Cowen's Weber.

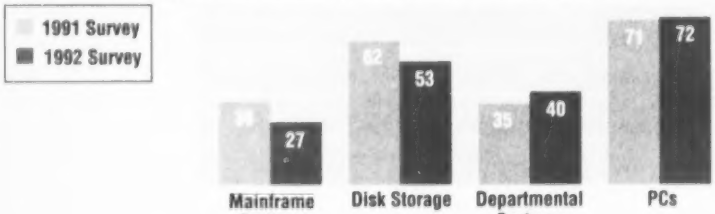
Nevertheless, the short-term future for major new mainframe investments may be bleak. Among users of the 3090-class machines, just 27% indicate a need for more mainframe system capacity for the 1992–1993 period. This represents a 9 percentage point drop in perceived need from a year ago.

These figures don't necessarily translate into total doom and gloom for IBM and its competitors. Indeed, the top end of IBM's System/390 ES/9000 line (machines with list prices of about $16 million to $23 million) "is doing very, very well," says Nick Donofrio, vice president and general manager of IBM's Enterprise Systems division. "We sold out our high-end computers in the first quarter, and we're working on satisfying our backlog worldwide," he says. This situation isn't surprising, according to Cowen's Weber, who says there is almost always demand for maximum

Who Needs More Capacity?

ALTHOUGH CAPACITY NEEDS ARE UP FOR PCs AND MIDRANGE SYSTEMS, THEY'RE MORE SUBDUED FOR MAINFRAMES AND DISK STORAGE...

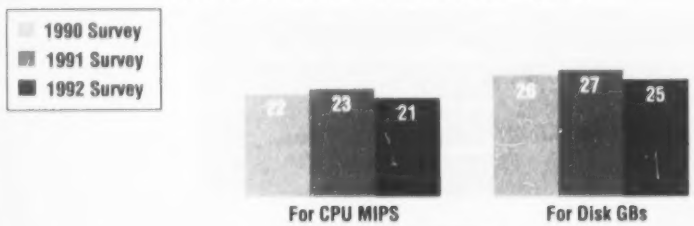
Percentage of sites indicating need for more processing capacity



3090-Class Sites Only

YET MAINFRAME CAPACITY NEEDS ARE DOUBLING, ON AVERAGE, ABOUT 3.5 YEARS.

At what average annual rate do you expect your capacity needs to increase over the next three to five years?



Source: DATAMATION, Cowen & Co.

capacity machines even during periods when demand for entry-level mainframes falls off.

Still, even given the popularity of these maximum capacity mainframes, "Our view for 1992 [for the Enterprise Systems division] remains quite modest," Donofrio admits. "We're working hard to improve cost expenses as well as return on assets."

IBM also needs to work hard to improve its image among large-systems users, the survey indicates. When asked if their attitude toward IBM as a supplier had changed during the past year, 27% of the 3090-class respondents said their opinion of the company was less favorable, and only 11% said their attitude became more favorable. One year ago, just 18% reported a less favorable attitude toward IBM, and 19% reported a more favorable opinion.

The limited IS funds currently available help prolong the status quo.

Despite this troubling shift, IBM is proving adept at warding off competition for its existing mainframe accounts. Among the large-system respondents, 83.8% list IBM as their primary supplier of host systems. Almost 80% of these users say IBM will remain as their main supplier in the future—a drop, but not a precipitous one.

Sunnyvale, Calif.-based Amdahl Corp. and Santa Clara-based Hitachi Data Systems Corp., the two major suppliers of plug-compatible mainframes, stand to gain some, but not all, of IBM's projected slight drop in business. Making even greater inroads into IBM's accounts will be Maynard, Mass.-based Digital Equipment Corp. and Hewlett-Packard Co. of Palo Alto. Even so, respondents indicate that in the future these two companies—traditionally considered midrange suppliers—will be the primary host system suppliers for just 3.7% and 1.8% of the IBM and PCM large-system base.

The survey also indicates that user demand for the "open" UNIX operating system remains a fairly minor issue, at least as a mainframe alternative. Only 13% of the respondents say that UNIX capability for their mainframes is "very desirable." IBM's proprietary MVS operating system seems solidly entrenched and has essentially become a de facto open system, argues Cowen's Weber.

UNIX demand is much stronger at the department level, however. More than one-quarter of the respondents say UNIX is a "very desirable" capability for their departmental systems. This department level demand for UNIX represents "the soft underbelly" of IBM's account control, Weber says.

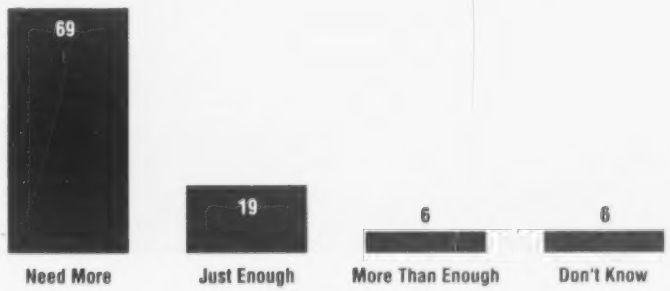
Well positioned to capitalize on IBM's UNIX vulnerability in this sector are HP and Sun Microsystems Inc., the survey reveals. Among the sites planning to emphasize UNIX for their departmental systems in the future, 11.7% expect HP to be their primary source of equipment. At present, HP is the main supplier for just 7.5% of the respondents. Mountain View, Calif.-based Sun, meanwhile, is projected to be the primary future supplier for 6.7% of these users, up from its current base of 3.3%. At the same time, IBM's role as the primary departmental UNIX supplier slips from 52.5% to 44.2%.

As is the case in the departmental-computing marketplace, UNIX shops pose the greatest problem for IBM (as well as Digital) in the healthy on-line transaction-processing (OLTP) arena. A

And So The PC Market Grows

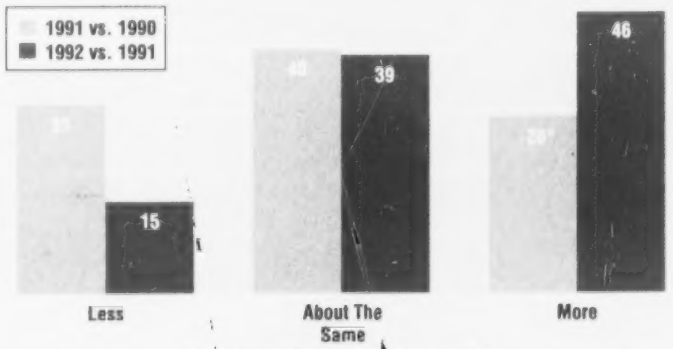
BECAUSE MORE THAN TWO-THIRDS OF RESPONDENTS NEED MORE PC CAPABILITIES...

How well set is your organization in terms of installed capacity for its 1992-1993 PC processing needs?



THE PC PURCHASING OUTLOOK SHOULD IMPROVE IN 1992.

How will the number of PCs your organization procures this year compare with the number purchased last year?



*Total does not add up to 100% due to rounding

Source: DATAMATION, Cowen & Co.

large percentage of software applications will be devoted to OLTP in both UNIX and, especially, non-UNIX shops. From 85 to 92% of those surveyed already run OLTP systems, but these high penetrations do not preclude substantial OLTP growth. On average, users predict that the number of transactions processed per day will grow 18% each year for the next five years.

IBM supplies more than half of all OLTP systems currently in use at the survey respondents' sites, and the computer giant should retain its majority grip despite some slippage in the future. Digital and HP trail at a distant second and third, respectively. Stratus Computer Inc., a Marlborough, Mass., maker of fault-tolerant computer systems, and Sequent Computer Systems Inc., a manufacturer of symmetric-multiprocessing computers in Beaverton, Ore., show the most growth potential in the OLTP sector overall, although their total market shares will remain tiny compared with those of the top three suppliers.

The longer the backlog, the larger the anticipated growth of software spending.

However, in those shops that expect to run their OLTP applications on UNIX machines, the survey shows IBM's grip on OLTP loosening. IBM currently holds just 43.6% of the OLTP base among the sites planning to move to UNIX-based OLTP, and respondents expect it to be the primary supplier at only 28.9% of these sites in the future. Digital's future share of these sites, meanwhile, is also projected to plummet—to 12.2%, down from its current 20.4% stake. The downturn predicted for both IBM and Digital is probably due to a lack of UNIX-based OLTP products, says Cowen's Weber.

HP and Sequent stand poised to take up much of the slack in UNIX OLTP environments. HP holds just 7.8% of the current base in this sector, but is expected to account for 18.9% in the future. For its part, Sequent is projected to parlay its 1.0% market presence into a 7.8% share, respondents predict.

In the past, OLTP applications resided solely on mainframe computers. Although this centralized computing paradigm remains dominant in large companies, the client/server model continues to make solid gains. Twenty-nine percent of respondents have already begun implementing client/server computing. An additional 11% are running pilot programs, and 23% are seriously considering the client/server option.

Among larger companies—those with 1991 revenues exceeding $250 million—the trend toward client/server computing is even more dramatic. Thirty-six percent of these large users are running client/server applications, and 15% are in the pilot stage.

Two necessary components of client/server installations are networks and PCs, and the spending rates in both of these sectors remain strong. While the overall annual growth rate expected for total IS budgets dropped to 6.0% this year, anticipated budget growth for network procurements held at a steady 9.2% rate. Even though fully 71% of the respondents have already installed departmental networks, there remains room for growth. Only 41% of the respondents' corporate PCs are currently connected to networks, and that figure is expected to grow to 55% by year's end.

Sitewide and enterprisewide networks, by contrast, appear less frequently than do their departmental siblings. Only 40% of the respondents

Networks: Quite A Head Of Steam

NETWORK SPENDING DRAMATICALLY OUTPACES AVERAGE IS BUDGET GROWTH...

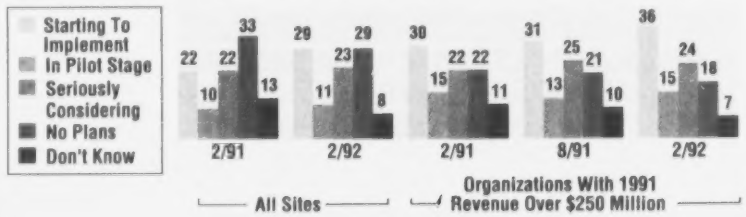
Average annual expected increase in total hardware and network budgets in 3-5 years

WITH LARGE ORGANIZATIONS LEADING THE WAY...

Percentage of respondents who have installed various types of networks

THE LARGEST ORGANIZATIONS LEAD THE ACCELERATING TREND TOWARD CLIENT/SERVER COMPUTING.

Where does your organization stand with regard to client/server computing?



Source: DATAMATION, Cowen & Co.

have a sitewide network, and only 31% have tackled the job of networking their entire organization.

All told, a growing number of users are turning to networked PCs and/or workstations as the main vehicles for implementing their future computing strategies. Depending on the organizations' size, anywhere from 26 to 35% of the surveyed users indicate they'll use networked PCs/workstations as their principal hardware platform for future data-processing applications. Even more impressive, between 50 and 68% of the users—again rising with organization size—plan to use networked desktop computers as their primary hardware for office/productivity applications.

That growing cadre of users is relying heavily on NetWare, Novell Inc.'s network operating system. Where once it was primarily used for departments' local area networks, the Provo, Utah-based company's flagship product is now just as pervasive in sitewide and organizationwide networks. Impressively, roughly two-thirds of respondents across all three sectors plan to use NetWare in 1992 and 1993; growth is most dramatic in enterprisewide networks, where it will jump from 57% to 66% next year and beyond.

Within the PC sector, the battle for operating system hearts and minds is about to get more complex, as IBM's long-delayed OS/2 2.0 PC operating system makes its appearance at last and girds itself to fight with Microsoft Corp.'s formidable DOS/Windows environment. In its campaign, IBM will face a steep uphill climb. Respondents indicate that almost half of their future operating system platform use will be Microsoft's basic DOS product. DOS-based Windows and the still-under-development Windows NT will fulfill 31% of their operating system needs. By contrast, respondents plan on only 10% use of OS/2, which represents a 6 percentage point drop from expected use one year ago.

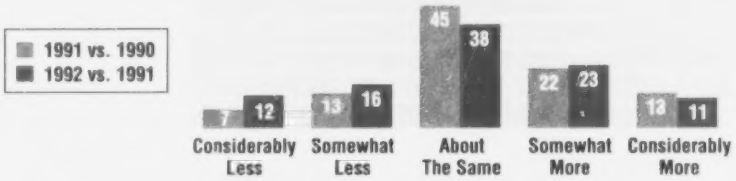
In OS/2's defense, Cowen's Weber speculates that the operating system's poor showing this year might have been influenced by the software's delayed entry into the market. Originally scheduled to be available late last year, the initial OS/2 shipments did not finally get under way until the end of March. IBM, predictably, is in no mood to accept the survey's bleak prognosis. Lucy Baney, director of programming systems market development for IBM's Personal Systems division, points out that OS/2 2.0 is in 30,000 beta test locations. What's more, she says, about 1,000 independent software vendors should produce 1,200 32-bit OS/2 applications by year's end. Delays aside, she maintains, "there are no more questions about the technical superiority of

Continued on page 51

Software Spending Slackens

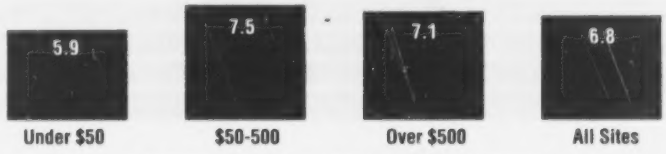
SOFTWARE SPENDING IS DOWN COMPARED WITH 1991 LEVELS...

How will the dollar value of software acquired by your organization this year compare with last year?



AS BUDGET GROWTH SITS IN MID-TO-HIGH SINGLE DIGITS ACROSS ALL SIZES OF ORGANIZATIONS.

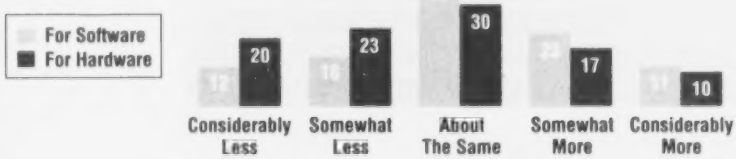
Average annual expected increase in software budgets over the next three to five years



Organization Size By 1991 Revenue ($Millions)

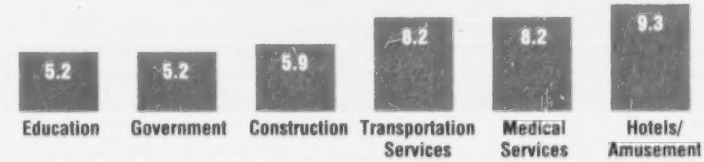
BUT PLANNED SOFTWARE SPENDING STILL LOOKS BETTER THAN HARDWARE SPENDING...

How will the dollar value of hardware (CPUs, peripherals and PCs) and software to be acquired by your organization in 1992 compare with that of 1991?



AND THE SERVICE SECTOR WILL FUEL MUCH OF THE GROWTH IN SOFTWARE.

Average annual expected increase in software budgets over the next three to five years*



*Arrayed on a continuum to show industry segments with lowest and highest rates of growth

Source: DATAMATION, Cowen & Co.

OS/2." Furthermore, she predicts that over the next three to four years, IBM will ship OS/2 in numbers equal to or greater than Microsoft's Windows and the future Windows NT software. In January, Microsoft claimed it had shipped 9 million copies of Windows.

Whether or not OS/2 meets Baney's upbeat projection, IBM is already showing some weakness in various other software sectors. This is particularly significant since software budgets are generally growing at faster rates than their hardware counterparts. A key reason for this faster growth is ever-present backlogs for new applications. Three-quarters of 3090-class mainframe users report that their current applications backlog will take more than one year to program; 36% say their backlog stretches out more than two years.

The longer the backlog, the larger the anticipated growth of software spending. At sites with application backlogs exceeding two years, respondents anticipate a 7.8% average annual increase in software expenditures over the next three to five years. By comparison, the expected growth in annual software budgets is just 6.1% at sites with backlogs that can be addressed within one year. The projected hardware budget growth at these two types of sites is just 6.2% and 5.7%, respectively.

As logic would have it, long applications backlogs are causing more users to shift from developing their own applications to the more expedient solution of buying packaged software. In 1991, survey respondents indicated that in-house staff would develop 63% of their applications, and that they would purchase only 26% as packages. This year, 58% say they will rely upon in-house programmers, compared with 32% who plan to buy packaged software. (The balance of applications are provided by third-party service companies.) Packaged software accounts for 11% of the average data-processing budget.

IBM's share of the packaged software market is declining even as more users are turning to such software. A decade ago, two-thirds of the dollars spent for packaged software went to IBM. This year, that percentage drops below 50%

One phrase that seems to be on everyone's lips these days is "object-oriented programming," a methodology that has the potential to fundamentally change the way software manufacturers develop products.

So what is this object stuff, and why should you care about it?

Objects are self-contained modules of data and the programs that act on those data. An object might be, for example, an individual invoice in an order-processing system. "Object-oriented programming is certainly not a product. It's a technology," says Gordon Eubanks, president of Symantec Corp., a Cupertino, Calif., software developer deeply involved in object-oriented research.

The typical office worker doesn't care how programs are constructed, Eubanks points out. However, using object-oriented programming techniques can affect the type of product a software developer turns out in much the same way a manufacturing process affects the quality of goods produced by, say, soap or automobile manufacturers. It also has the potential to greatly speed up product development.

According to David Liddle, president of Palo Alto-based Interval Research Corp. and formerly IBM's vice president of new systems and

■ **Interval's Liddle: Object-oriented technology helps companies "get off the sandbar."**

business development, object-oriented programming techniques have several benefits. They produce modules of code—little bulletproof components of a program that don't interact with each other—rather than traditional, sequential programs. This modularity simplifies design because components can be reused. It makes finding errors easier because developers don't have to hunt through the entire program to track down a bug. Both of those factors can help speed products to market.

"The reason that object-oriented architectures are better than previous approaches that we've tried is extremely technical and may be arcane, but the end result is, I think, easy for people to comprehend," says Eubanks. "If you can build building blocks in software and then reuse them, you should be able to get more leverage in producing more sophisticated and detailed products for software programs."

Liddle says that object-oriented technologies are a new way to help companies make the arduous move from product design to market—a process he calls "getting off the sandbar.

"We want to be able to sell into a market and to distribute software in more markets and in more different ways than we can do it today," says Liddle. And that can only help the software industry.

—Elizabeth Lindholm

for the first time.

Even in view of the trend toward packaged software, the bulk of the applications software used by large organizations is still created in house. So, anything that can boost the productivity of the staff programmers and the quality of their output will receive more than its share of budget allocations in the coming years. For example, the percentage of mainframe users employing computer-aided software-engineering (CASE) tools grew from 11% in 1991 to 14% early this year, and respondents project that this percentage will grow to 22% by the end of 1992.

The percentage of the total software budget devoted to CASE will rise in coming years, for those already using CASE products. Indeed, according to 435 respondents who answered a separate survey sent to 1,632 users of CASE and other productivity-enhancing tools, just 6.3% of software dollars went to CASE and similar products in 1991. But these respondents estimate that percentage will grow to 8.6% this year and to 10.1% in 1993. Overall, these existing users on average expect budgets devoted to CASE and other application development tools, such as fourth-generation languages (4GLs), to increase at 27% per year over the next three to five years.

Spending for software development tools is growing in companies that need them primarily for developing mainframe applications. But demand is strongest at sites using the tools to develop applications for workstations. For instance, this year, respondents at these workstation sites project that 15% of their software budgets will be spent on CASE tools and similar products, whereas only 7% of the software budget will be allocated to these products at the mainframe sites.

Even at workstation sites, however, only 28% of potential users currently employ CASE and other productivity-enhancing tools. At sites of all types already using these tools, penetration is just 19%, indicating a promising growth potential for CASE tools, 4GLs, object-oriented programming languages and other such software development products within existing sites.

These tools include a broad spectrum of products that address various components of the software life cycle from the initial analysis to the final maintenance. Analysis and design tools are relatively well accepted; about one-third of these CASE-oriented respondents currently employ them. Here, Oracle Corp. is emerging as a leader, showing signs of strong growth. At the time of the survey, the Redwood Shores, Calif., company was the supplier of analysis and design tools at just 11% of the responding sites, but 20% of respondents list Oracle as their likely supplier in 1992 – 1993.

Fourth-generation languages, too, are well established; about 45% of respondents already use them. Oracle also fares well in this sector, holding the largest market share—19%—of the installed base. Twenty-one percent of those surveyed say Oracle will be their future supplier, further solidifying its lead. Among other vendors, Sybase Inc. shows the strongest growth potential. The company holds just 5% of the installed base of these tools, but 9% of respondents list the company as their future supplier.

Once users produce software code, they must maintain and update it. Most are still performing maintenance manually; less than 10% employ maintenance and reengineering tools. These tools could take off over this year and next, as users add to their skimpy base; respondents predict a 71% growth rate through 1993. Use of tools for maintenance is matched by use of tools to create expert systems. Respondents indicate that use of these tools will expand 57% through 1993—a growth rate equaled by that of real-time system and technical CASE tools, which only 7% of the respondents use currently. Cross life cycle CASE tools, which help manage the overall application development process, promise to grow 74% through 1993, from an almost nonexistent base of 3% or 4%.

The optimistic growth rates indicated for many types of CASE tools are only a few bright spots in the weak 1992 market for hardware and software, however. IBM and other vendors can only hope that current budget projections prove unduly pessimistic. Still, demand for processing is growing at a healthy clip, so it stands to reason that budgets are bound to surge at some point. The outstanding question now is whether the anticipated budget resurgence will occur during 1993, or whether information systems suppliers will have even longer to wait for their ships to come in. ■

Survey Method

The 15th annual Large and Midrange Systems User Survey is based on 2,383 reader survey questionnaires returned last February following a mailing to 55,000 IBM mainframe users and 1,905 supercomputer users in the United States and Canada. Statistics concerning computer-aided software engineering (CASE) are based on 435 questionnaires returned following a separate mailing to 1,632 users of CASE software.

The survey is administered by Cowen & Co. Institutional Services, a full-service brokerage and corporate finance company whose Boston and New York-based research team specializes in high technology and health-care related companies. Although the survey does not constitute a scientific representative sampling of the domestic user community, the results do highlight general directions toward which IS managers are moving their organizations in the year ahead.

Top Accountants Rate Accounting Software

If the leading micro- and LAN-based accounting packages all look the same to you, look closer—their differences are small but important.

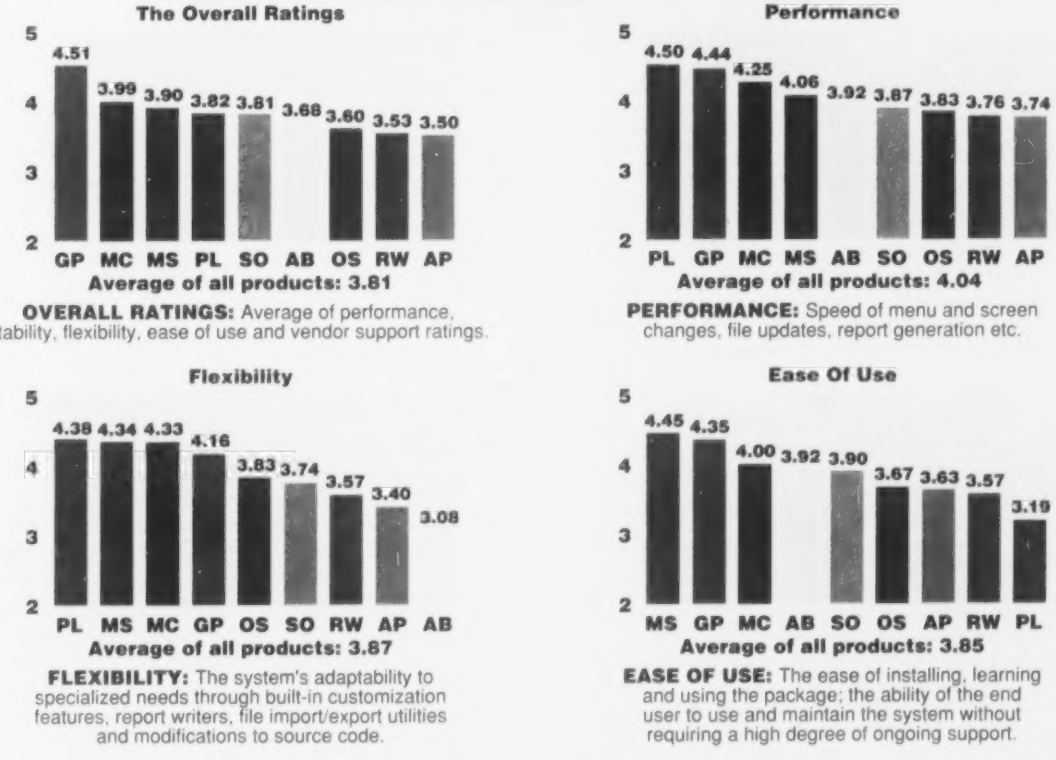
BY NED SNELL

Gotta pick accounting software for the LAN? Cinch. Stick with the top-selling packages, and how can you go wrong? After all, they'll all post to a general ledger, pay vendors, invoice customers and spit forth financial statements, pleasant or otherwise. And the name brands are mature and stable products that by now must all feature the same bell-and-whistle set, right?

Experts in accounting software say this point of view is pervasive—and dead wrong. Selecting accounting software is tricky business, demanding plenty of time and careful research—even for the relatively inexpensive PC-based packages available that run on local area networks (LANs).

Since PC packages only cost about

Accountants Rate Accounting Software:



OVERALL RATINGS: Average of performance, stability, flexibility, ease of use and vendor support ratings.

PERFORMANCE: Speed of menu and screen changes, file updates, report generation etc.

FLEXIBILITY: The system's adaptability to specialized needs through built-in customization features, report writers, file import/export utilities and modifications to source code.

EASE OF USE: The ease of installing, learning and using the package; the ability of the end user to use and maintain the system without requiring a high degree of ongoing support.

Legend: AP = ACCPAC PLUS GP = Great Plains MC = MACOLA MS = MAS 90 OS = Open Systems PL = Platinum RW = Real World SO = Solomon III

Ratings Scale: 1 = Poor 3 = Fair 5 = Best

Source CTS

$150 to $700 per user, "it's difficult for a client to see why he should pay for advice," says CPA Jim Snyder, a partner of Boulay, Heutmaker, Zibell & Co. in Edina, Minn. "But the impact on his business has got to be considered. He's probably going to be months down the road before he realizes he's got the wrong fit." As more companies begin to port critical applications like accounting down to today's big LANs, the price of a bad decision—including lost productivity and the cost of migrating to and retraining for a replacement accounting package—grows.

Snyder says some firms are even willing to let their hardware vendor recommend an accounting package—a potentially disastrous decision. "A good hardware person may not know a debit from a credit or an income statement from a balance sheet," he says.

So where can accounting software buyers go for answers? According to CPA Ron Bernstein, senior associate with Coopers & Lybrand in New York City, you're already doing one thing right: you're reading about PC accounting software in a professional computing publication.

Of course, he's quick to point out that you can also hire professionals like himself or Snyder, accounting experts who can work with your chief financial officer or comptroller and IS staff to develop a comprehensive business/technical needs analysis, then identify a "short list" of packages that most closely match both the company's immediate needs and its likely direction. But you've got to be sure to evaluate these products in house and, if possible, use a copy of your company's actual accounting data, Bernstein says, before accounts payable cuts a check to the winning software vendor.

A good start on the road to locating potential software vendors may be three products from Computer Training Services Inc., of Rockville, Md. CTS publishes an annual survey of microcomputer accounting product evaluations; a 250-page guide to selecting accounting software; and a Lotus 1-2-3 template (see sidebar, "A Do-It-Yourself Software-Rating System"), which automates your own product evaluation.

The 1992 survey, the company's fifth annual, presents scores and comments from 160 CPAs and consultants who install and recommend accounting software. They rate nine of the leading MS-DOS-based integrated accounting packages; the results are shown in the accompanying charts.

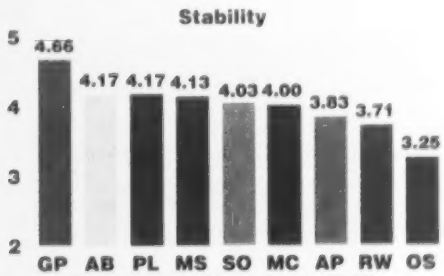
CTS also includes comments, but not ratings, for five more packages: AccountMate from SourceMate Information Systems Inc., BusinessWorks from Manzanita Software Systems, CYMA Professional Accounting Series from Cyma Systems Inc., Libra from Libra Corp. and SBT Database Accounting Library from SBT Corp. Many products also come in versions for OS/2 or UNIX, and all support popular LANs.

A quick look at the results of this year's survey shows the widest spread in overall combined scores—a full point—between top ranked Great Plains from Great Plains Software and the lowest, but still respectably ranked, CA-ACCPAC Plus from Computer Associates International Inc. Overall, Great Plains ranked 4.51 out of a possible 5.0; ACCPAC Plus ranked 3.50. If these were high school test scores, they would rank at about a 92, or an A-, for Great Plains and a 70, or a C-, for ACCPAC Plus.

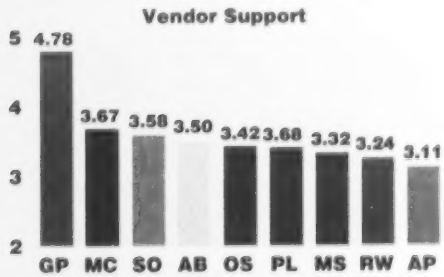
CTS president Sheldon Needle says the point spread is revealing: "The way the numbers run, a point is a lot. A point is the difference between mediocrity and thinking highly of a product." Still, respondents' comments may be the meat of the study; they identify trouble spots in features, technical sturdiness and support. Accounting software consultant Carol Lisook, manager of information systems for Dallas-based accounting firm Travis, Wolff & Co., finds the comments more useful than the ratings: "It's good to see what other consultants have to say about their experience with products."

To stay fully informed, Lisook maintains a library of accounting software documentation, and also buys CTS's guide, which includes regularly updated tables of more than 800 features, as well as pricing and support criteria for 18 leading microcomputer accounting products. That much information is essential to recommending accounting software, Lisook says, because "each client needs something unique. And the program that I think would have any feature you'd want often doesn't have that feature."

A professional services client of Lisook's, for example, had selected a system because it included a job-costing module. Only after experience did the client discover that the package produced reports based on construction job costing, and they couldn't be modi-



STABILITY: Database reliability, file/error recovery, lack of program bugs etc.



VENDOR SUPPORT: The overall quality of vendor support including telephone support response time and quality of response, notification of bug fixes, availability of critical updates etc.

fied to better fit a services company like his. Lisook showed the client that he needed not job costing, but a modifiable time and billing package integrated with accounts payable. Lisook could find only one product that suited that client's needs: State Of The Art Inc.'s MAS 90 Evolution/2.

Lisook's client is typical of companies that try to choose accounting software without looking into the details. Says Boulay's Snyder, "I've seen a lot of situations where the questions [customers] ask are as broad as 'Do you do billing?' They don't ask more detailed questions about whether what those systems do fits well with their business."

"The process you have to go through," says Coopers & Lybrand's Bernstein, who uses the CTS guide, "is an interview process and then the questionnaire process with it. You take a look at every feature, making sure that the client understands each feature. It's painstaking, but as soon as they get through it, they're very pleased." The CTS questionnaire includes a section on technical issues like platform and LAN support and security; Bernstein takes his clients' IS folk through that part.

The painstaking approach can't help but turn up plenty of unique features and distinctions, both technical and financial. On the technical side, for instance, only Libra runs under Digital Equipment Corp.'s VAX/VMS operating system (although value-added resellers have ported RealWorld Corp.'s package to VMS, RS/6000 and other platforms), and only Great Plains and SBT run on the Macintosh.

Some products feature integrated vertical industry modules. Macola Inc.'s package sports manufacturing modules; Cyma and RealWorld products feature point-of-sale modules. Companies that want maximum flexibility want source code, and you can get it for some, like AccountMate and Open Systems Accounting, but not for others, like Great Plains and Advanced Business Microsystems Inc.'s Platinum. And spreadsheet interfaces are available for some. Recently, Computer Associates added DynaView, a dynamic link between ACCPAC and CA-SuperCalc or Lotus 1-2-3.

There's also extreme variation in network pricing schemes—the product that's a bargain for three users may be a bust for 20. Unlike some packages, which began as stand-alone products and were later ported to networks, Platinum was built from the ground up as a distributed LAN system, and it may have advantages in performance, concurrency or other features in large LAN environments.

Sometimes, seemingly picky criteria can make a big difference in some shops. Bernstein points out that merger mania begets unexpected accounting consolidations, and these often demand extra long fields to accommodate combined names and other information during the transition.

And the competitive accounting software market changes fast. In April, for example, Macola announced that it will soon produce a UNIX version, and Solomon Software has announced a big boost in the network performance of its Solomon III. Studies are a good starting point, but buyers should always check in with vendors, too, to see what's really new. Needle recommends contacting customer references for their comments, as well.

There's a lot you can do to up your chances of finding the right accounting software. There's only one thing you can't do: too much. ■

A Do-It-Yourself Software-Rating System

To help with the all-important needs analysis phase of accounting software selection, Computer Training Services Inc., offers a detailed questionnaire in a Lotus 1-2-3 worksheet called The Requirements Analyst. Users can use the worksheet to organize "must have" and "nice to have" requirements for more than 800 features; the Requirements Analyst then automatically ranks the 18 accounting products in its database (updated semiannually) on the basis of the requirements met by each.

Ron Bernstein, senior associate with Coopers & Lybrand, uses the software in tandem with CTS's hard-copy guide, and says, "I can't do my business without it at this point. . . . You can probably get 80% of your generic needs met by any of the top 10 [accounting packages]. But I like to get my clients closer to 95%, and that's why I use the tool."

Although The Requirements Analyst rates only microcomputer/LAN software, Bernstein says the needs analysis methodology in CTS's products is a useful tool for assessing accounting software needs for systems large and small.

Who's Who In Accounting Software

To kick off a detailed investigation of the PC LAN accounting software packages and consultants mentioned in this story, circle the appropriate numbers on the Reader Card.

Company	Circle
Advanced Business Microsystems Inc.	
Platinum	400
Boulay, Heutmaker, Zibell & Co.	
(Consultant)	401
Computer Associates International Inc.	
ACCPAC BPI, ACCPAC Plus	402
Computer Training Services, Inc.	
(Accounting software survey)	403
Coopers & Lybrand	
(Consultant)	404
Cyma Systems Inc.	
CYMA Professional Accounting Series	405
Great Plains Software	
Great Plains	406
Libra Corp.	
Libra	407
Macola Inc.	
Macola	408
Manzanita Software Systems	
BusinessWorks	409
Open Systems Inc.	
Open Systems Accounting	410
RealWorld Corp.	
RealWorld Accounting & Business System	411
SBT Corp.	
SBT Database Accounting Library	412
Solomon Software	
Solomon III	413
SourceMate Information Systems Inc.	
AccountMate	414
State Of The Art Inc.	
MAS 90 Evolution/2	415
Travis, Wolff & Co.	
(Consultant)	416

Source: CTS

SALES OFFICES

Publisher/Vice President
Mike Wisner
Sales Manager
Stephen Twombly
Sales Services
Kelly Mount
Production Supervisor
Laurie Poth
Production Manager
Dian S. Tobin
Advertising Services
Claudia A. Marinelli

EASTERN REGION

MID-ATLANTIC
Rick Groves
487 Devon Park Drive
Suite 206
Wayne, PA 19087
(215)-293-1212

NEW ENGLAND, CANADA
Alan Bergstein
199 Wells Avenue
Newton, MA 02159
(617)-964-3730

NYC, NY, CT, LI
Kathy A. Murray Powers
103 Eisenhower Parkway
Roseland, NJ 07068
(201) 228-8617

MIDWEST
John Stellwagen
1350 E. Touhy Avenue
Des Plaines, IL 60018
(708)-390-2967

SOUTHEAST
Peter Nicas
6520 Powers Ferry Road
Suite 395
Atlanta, GA 30339
(404)-955-6500

WESTERN REGION

NORTHERN CALIFORNIA
Tina Ferguson
3031 Tisch Way
Suite 100
San Jose, CA 95128
(408)-243-8838

NORTHWEST
Carole Sacino
3031 Tisch Way
Suite 100
San Jose, CA 95128
(408)-243-8838

SOUTHWEST
Terry Buckley
1904 Church Street
Suite A
Costa Mesa, CA 92627
(714)-722-1242

John Sabo
447 Herondo Street
Suite 305
Hermosa Beach, CA 90254
(310)-379-8455

INTERNATIONAL

CAHNERS PUBLISHING COMPANY
27 Paul Street
London EC2A 4JU
England
Tel: 44-71-628-7030
Telex: 914911 CAHNERS G
Fax: 44-71-628-5984
Managing Director—Europe
Tully Giacomazzi

U.K., SCANDINAVIA, BENELUX
Stuart Smith

FRANCE
Laura Whiteman
Cahners Publishing Ltd.
14 Rue Des Parisiens
92600 Asnieres Sur Siene
France
Tel: 33-1-4790-0507
Fax: 33-1-4790-0643

SPAIN
Carlos Perez
Managing Director
Haymarket S.A.
Aribau, 168-170
1 Planta
08036 Barcelona
Tel: 343 238 1742
Fax: 343 237 6688

GERMANY, AUSTRIA
Erhardt Eisenacher
Cahners Publishing Ltd.
Markt 9
D-5300 Bonn
Tel: 49-228-650013
Fax: 49-228-650076

SWITZERLAND
Werner Stahli
Schelbenacker Strasse 14
CH-8245 Feurethalen
Switzerland
Tel: 41 53 29 2087
Fax: 41 53 29 2034

ISRAEL
Asa Talbar
Talbar Media
PO Box 22917
Tel Aviv 61228
Israel
Tel: 972 332 2716
Fax: 972 22 4 7 403

JAPAN
Kaoru Hara
Dynaco Int'l Inc.
Suite 1003 Sun Palace
Shinjuku
8-12-1 Nishishinjuku,
Shinjuku-Ku
Tokyo, 160, Japan
Tel: 81-3-3366-8301

TAIWAN
Parson Lee
Acteam Int'l Marketing Corp.
2 floor, No. 17, Alley 7,
Lane 217, Sec. 3,
Chung Hsiao E. Road
PO Box 18-91
Taipei, Taiwan, ROC
Tel: (866) 2-7114833

SINGAPORE
Peter Cheong
Asia Pacific Media House PTE Ltd.
Newline 100 Beach Road
#24-03 Shaw Tower
Singapore 0718

DATAMATION CAREER OPPORTUNITIES

Roberta Renard
National Sales Manager
103 Eisenhower Parkway
Roseland, NJ 07068
(201)-228-8602

Janet O. Penn
Eastern Sales Manager
103 Eisenhower Parkway
Roseland, NJ 07068
(201)-228-8610

Nancy Olbers
Western Sales Manager
238 Highland Street
Portsmouth, NH 03801
(603) 436-7565

Diane Philipbar
Production Assistant
(201)-228-8608
103 Eisenhower Parkway
Roseland, NJ 07068

INFORMATION CARD DECKS

Diane Berger
275 Washington Street
Newton, MA 02158
(617)-558-4355

INSIDE SALES

Judy Benford
275 Washington Street
Newton, MA 02158
(617)-630-3937

ADVERTISERS' INDEX

ADVERTISERS IN THIS ISSUE

This index lists advertisers in this issue of DATAMATION

	Page	Circle
Andersen Consulting	8	6
AT&T	35-37	—
Attachmate	C2	1
Broderick Data Systems	26	11
Canon U.S.A.	59	20
Chipcom	72	28
Cincom	68 94	28, 36
Clarion Software	10	7
Computer Associates	C4, 13	3, 8
Cooperative Solutions	77	30
DATAPRO***	96-2	38
Digital Equipment Corp.	16, 69	—
EMC	92-93	35
Exide Electronics	1	4
Facit, Inc.	97	40
Fair Isaacs	111	47
Fibronics	102-103	43
Genicom	89	49
Grafpoint	124	51
IBM Corp.	14-15, 54-55	—
IDEAssociates	48-49	17
Information Builders	27	12
Integris	107	44, 45
International Power Machines	113	48
Intersolv	115	34
Lanier Copying	30	14
Lannet	108	46
LEGENT CORP.	6-7	5
MAGIC***	96-1	37
Math Strategies**	126	53
Micropolis	123	50
Minolta Corporation	64	24
Motorola	33	15
Natural Language	50	18
NCR Corp.	28-29	13
NEC	70-71	27
Network Systems	78-79	31
Oracle Corp.	2, 4	—
Popkin Software	86	33
Prime Factors, Inc.**	126	55
RAD Datacommunications***	96-7	39
RADLINX	114	56
SAS Institute Inc.	83	—
Sharp Copier	67	25
Software 2000	101	42
Sun Microsystems, Inc.	61-63	22, 23
System Software Assoc. Inc.	125	52
TechGnosis	47	16
Telxon Corp.	98	41
TWIN COM**	126	54
Unisys Corp.	84-85	32
Viasoft	C3	2
Wang	56	19
Wyse Technology	20-21	10
Xircom	19	9
XL/Datacomp	75	29
Recruitment Advertising	**116-119**	—

Adia Information Technologies
American Institute for Computer Sciences
Analysts International Corp.
Andersen Consulting-Foundation Recruiting
Atlanta Group Systems
Federal Express
Robert Half International
SAP America, Inc.

*Regional Advertiser
**Product/Services Mart
***International Only

Headquarters: 275 Washington St., Newton, MA 02158, (617) 964-3030, telex 127703, fax (617) 558-4506. **Central:** Two Forest Plaza, 12201 Merit Dr., #730, Dallas, TX 75251, (214) 419-1820. **Western:** 12233 W. Olympic, Los Angeles, CA 90064, (213) 826-5818, 3031 Tisch Way, Suite 100, San Jose, CA 95128, (408) 243-8838. **International:** 27 Paul St., London EC2A 4JU, England, (44-1)-628-7030, telex 914911. DATAMATION® (ISSN 0011-6963 RPUSA GST #123397457) Magazine is issued twice monthly on the 1st and 15th of every month with additional issues in April, June, September and October by Cahners Publishing Associates, L.P., 275 Washington St., Newton, MA 02158. Editorial and advertising offices: 275 Washington St., Newton, MA 02158. Annual subscription rates: U.S. and possessions, $69; Canada, $98; Japan, Australia, New Zealand, $180 air freight, $290 air mail; Europe $157 air freight, $290 air mail. All other nations, $157 surface, $290 air mail. Reduced rate for U.S. public and school libraries, $47. Single copy, $10 in U.S. **For Foreign Subscribers only:** send all address changes and correspondence to — Datamation, Cahners Publishing Netherlands, Postbus 9000, 2130 DB Hoofddorp, The Netherlands, FAX # # 31-20-6531316, Tel # # 31-20-6531171. Circulation records are maintained at 44 Cook St., Denver, CO 80206, Phone (303) 388-4511. Second-class postage paid at Denver, CO 80206 and at additional mailing offices. DATAMATION® copyright 1992 by Cahners Publishing Associates, L.P. Reprints of articles are available; contact Andrea Marwitz (708) 635-8800. Microfilm copies of DATAMATION® may be obtained from University Microfilms, a Xerox Company, 300 N. Zeeb Rd., Ann Arbor, MI 48106. Printed by Graffek Press Inc. **All inquiries and requests for change of address should be accompanied by mailing label from latest issue of magazine.** Allow two months for change to be made. **POSTMASTER: send address changes to DATAMATION®, PO Box 173377, Denver, CO 80217-3377.**

Japan Sneezed, So Grab Your Hanky

Used to be, when the U.S. economy sneezed, the rest of the world took out its handkerchiefs. This year, it's Japan that has the sniffles and the U.S. information technology industry is grabbing for the Kleenex.

Yes, the DATAMATION Information Systems Performance Indicator (ISPI) finally inched past the magic 100 mark last month, signaling the beginning of a growth period at last for IT. By year-end 1992, we expect the indicator to surpass 106. But no higher.

In previous turnarounds, the ISPI has reached much higher levels, rising as high as 120 in 1985, for example. This time around, foreign sales, which helped shore up the IS industry during last year's recession, are stalling.

Last year, Japan—the single largest country market for information technologies and products—sucked up 14% of U.S. computer equipment exports. But this year, despite several cuts in the discount rate by the Bank of Japan, the Japanese economy is going through its own special kind of downturn.

Consensus GNP forecasts for Japan place growth at only 2.3% for calendar year 1992. That may seem relatively healthy compared to the United States's "glowing" forecast of 2% growth this year, but it's a far cry from Japan's 1991 GNP growth of 4.4%.

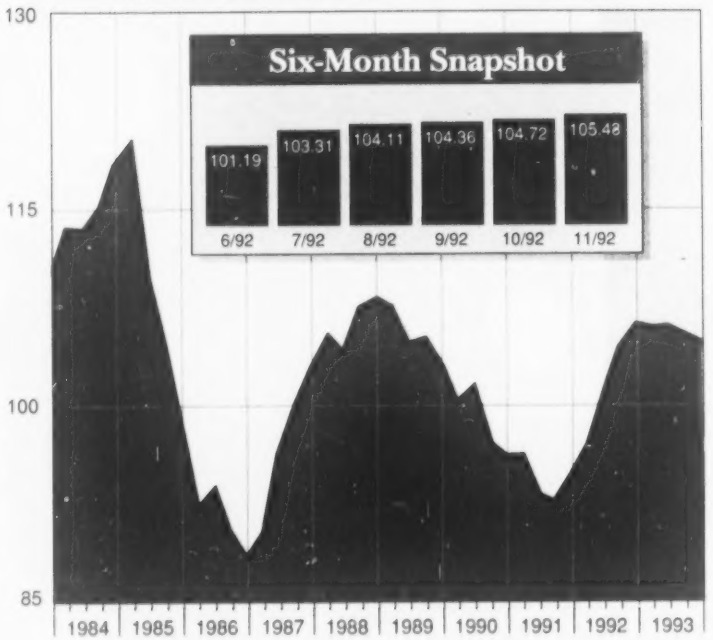
In fact, business investment, which energized Japan's growth in the past, seems to have run out of fuel this year. Based on surveys conducted by several Japanese organizations, firms plan on cutting spending on plant and equipment by as much as 5% this year.

The situation in Japan is only one example of what U.S. exporters face as recession wends its way through other nations' economies. U.S. information systems vendors will need to focus on home markets this year as a result. ■

By Madeline Franchi, Cahners Economics. For more information on Cahners Economics's forecasting services, call Dan Buchan at (617)-630-2105.

The IS Performance Indicator

Only A Small Fever Is Building For The Information Industry



*Shaded area denotes forecast

	Feb. 1992	Jan. 1992	% Change 2/92-1/92	Feb. 1991	% Change 1991/1992
Information-Processing Equipment					
Shipments (SA, $ billions)	10.19	10.46	-2.6	9.36	8.8
New Orders (SA, $ billions)	9.94	10.18	-2.4	9.79	1.5
Unfilled Orders (SA, $ billions)	25.26	25.50	-1.0	28.95	-12.8
Inventory (SA, $ billions)	15.01	15.32	-2.0	16.11	-6.8
Computer Production Workers					
Employment (NSA, thousands)	253.0	253.3	-0.1	269.4	-6.1
Average Weekly Hours (monthly avg.)	41.8	41.7	0.2	41.1	1.7
Stock Index					
S&P's Computer Systems Stock Price Index	155.5	160.6	-3.2	201.8	-22.9
Contracts & Orders					
New Plant & Equipment (SA, $ billions)	34.4	31.7	8.5	37.7	-8.9

SA= seasonally adjusted;
NSA= not seasonally adjusted

Source: U.S. Commerce Dept., Standard & Poor's forecasts: Cahners Economics

Source: DATAMATION, Cahners Economics